Election Data Disaggregation in Wisconsin

The process of "fitting" State of Wisconsin General Election data into the 2001 ward layer is a long and complicated process. After each decennial U.S. Census each county in the State of Wisconsin goes through a process of local redistricting. This process of local redistricting results in the creation of a new statewide municipal ward layer. This new municipal ward layer is collected by the Wisconsin State Legislature and is used for legislative redistricting. This ward layer is also used to hold statewide and local elections (partisan and non-partisan). Throughout the decade this ward layer changes but these changes are not reported to the legislature.

Election data is sent to the Government Accountability Board (GAB) in reporting units (grouping of wards), these reporting units are determined by the county clerks before each election. As an example, the City of Whitewater may have ten municipal wards but they may report their election data by grouping certain wards together (wards 1-5, wards 6-10).

Creating Election Geography

After each general election the GIS team creates an election geography layer. This is done by using the current ward layer (created in 2001) and assigning reporting units to each ward.

Table 1: Assigning wards to Reporting Units

Ward	Reporting Unit
Whitewater – C 1	1
Whitewater – C 2	1
Whitewater – C 3	1
Whitewater – C 4	1
Whitewater – C 5	1
Whitewater – C 6	2
Whitewater – C 7	2
Whitewater – C 8	2
Whitewater – C 9	2
Whitewater – C 10	2

Adding Election Data to Election Geography

Once the ward geography has been assigned to reporting units a spatial dissolve is performed to create new reporting unit geography. This new geography can be directly joined to the election data that is reported from the GAB.

| Reporting Unit	Presidential Election Data Rep.	Presidential Election Data Dem.
1	250	100
2	150	300

Now that we have reporting unit geography with election data totals, we will use CityGate GIS's AutoBound software to disaggregate the election data to census 2000 (and to census 2010) blocks by population.

Disaggregation of Election Data using AutoBound 9

The diagram below shows how the AutoBound software is used to disaggregate election data in reporting units down to census blocks.
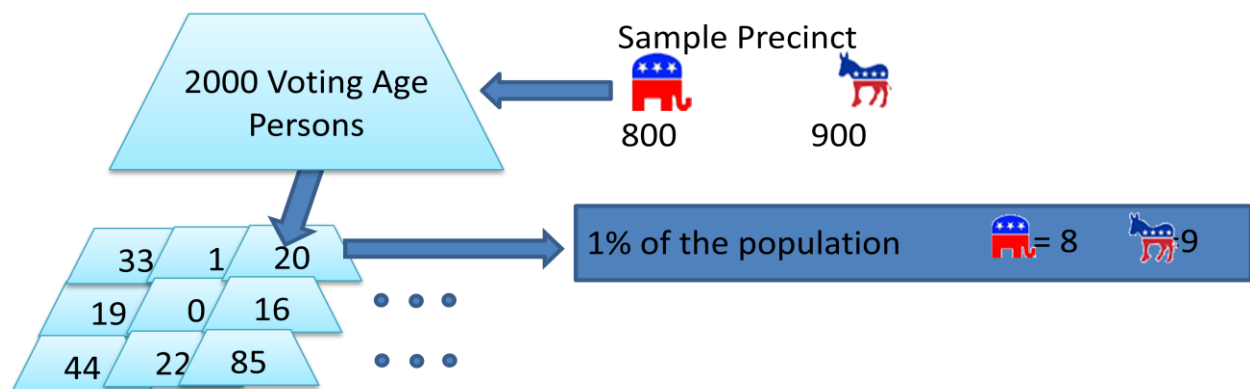
The ward data that is collected after each decennial census is made up of collections of whole census blocks and split census blocks (these occur during local redistricting when municipalities include recently annexed property in their ward submissions to the legislature). Once the election data is disaggregated to blocks then it can be aggregated back up to wards, municipalities and counties.

Other Factors

We use a static ward layer (created in 2001) to create the election data reporting geography. Using this ward layer does create some challenges when disaggregating election data.

1. New wards are created every year due to annexations. We are currently handling new wards reporting election data in the following manner.
    - Single new ward reporting election data.
        - This election data is distributed to all ward geography in the given municipality by population percentage.
    - New ward(s) reporting as part of a grouping of wards.
        - This election data is distributed to all wards in the reporting unit by population percentage.

This methodology results in the following.

- Election data totals reported to the GAB at the state, county and municipal level should match the disaggregated election data total at the same levels.
- Election data totals reported to the GAB at ward level may not match the totals in the disaggregated election data file.
- Some wards may have more election data allocated than voter age population.